CENTRAL INTELLIGENCE AGENCY

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COUNTRY Poland

REPORT

SUBJECT Installation for Presmelting and Enrichment of Low-Grade Soviet Iron Ore at Sabinow near Czestochowa

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CASE ROUTE ATTACHED

1. History, general data and importance of the installation.

a. Poland is supplied by the USSR with iron ore with a maximum content of Fe 35%, and average content 25%. This is second-class ore; when it is processed in the caking plant, there are difficulties in the blast furnaces which get choked up and slow up or stop work. For this reason, a process of enrichment of the iron ore similar to the usual procedure in blast furnaces has been adopted; for this, ore with 80% Fe content is obtained. The plant for carrying out this process was begun in 1952 and went into operation in 1956; it serves not only Czestochowa, but a number of other foundries in Poland.

b. In the first half of 1956 preliminary work was begun on the construction of another plant at Zebiec near Ilza.[1] The whole project was worked out by Biprohut (Biuro Projektowania Urzadem Przemyslu Hutniczego - project bureau for the foundry industry), Gliwice (Gleiwitz), ul. Dubois 16. The overall planning was under the supervision of Ing. Wasylewicz (fnu) [redacted] The construction was under the practical supervision of Ing. Stanislaw Sasiadek [redacted] The work of construction was carried out by Mostostal of Zabrze. Funds for investment in the construction were provided by the Ministry of Mining in Warsaw. 25X1

2. Location (see sketch map - the plant is marked (M)) — not in enclosure when it reached [illegible]

The ore enrichment plant, known as Zelgruda Sabinow is on the southern outskirts of Sabinow, about 4 km. south of Czestochowa. A new road, a continuation of the road from Czestochowa, has been built to it; at the point where this road branches off, a new transformer station has been put up. A railroad line branches off on the east side. The total area of the plant is about 400 x 300 m. 25X1

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(Note: Washington distribution indicated by "X"; Field distribution by "#".)

3. Technical data

a. The procedure for ore enrichment is as follows: the ore passes through a rotary heating furnace, 60 to 70 m. long and 3 to 4.2 m. in diameter, with a slant of 2 to 3°, which is heated by coal dust and reaches a maximum temperature of 1,200° C. The iron content is separated from the ore and collected in drops but is not yet pure Fe; it then goes through what is known as a "multicyclone" which separates the lighter from the heavier material (mainly the Fe) by a high rate of rotation, thus obtaining pure ore with 80% Fe content.

b. Equipment includes two rotary furnaces 60 m. long, diameter 3.6 m., with a slant of 3°, and one rotary furnace 70 m. long, diameter 4.2 m., with a slant of 2°. The furnaces consist of 11 parts riveted together, which are the products of Huta Ferum (cover designation H 124), forming an outer cover 20 mm. thick, of 0.45 quality steel plating (qualities range from 00, which is ordinary iron, and 0.15, the first type of steel plating, upwards, according to hardness). Huta Ferum is the only foundry in Poland capable of making the C.45 quality.

c. The furnaces are walled with three thicknesses of "Alu" type bricks from Czechoslovakia; at the hottest points, the layer of bricks is 375 mm. thick; at other parts, 250 mm., and finally 125 mm. The furnaces rotate around their axis, driven by gearing encircling the middle.

d. There are two electric motors for each furnace, one of which is a reserve. These motors presented a very serious problem from the production point of view in Poland, and are a special product, which has undergone several modifications, of some factory in Cracow.

e. Each complete furnace, therefore, consists of a coal dust chamber, the actual heating furnace, the "multicyclone" and the two electric motors. Operation is fully automatic and uninterrupted. 25X1

4.

44.2

Key to sketch of furnace (Sketch A).

i) Brick lining, in A - A, three layers 125 mm. thick, i.e. 375 mm; in B - B, two layers, i.e. 250 mm. thick, and in C - C, 125 mm. thick.

ii) Bearings supporting the furnace.

iii) Compensator, at each end

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iv) Rotary bearings firmly screwed into the furnace casing and resting on the supporting bearings (2).

v) Gear wheel for rotating the furnace, riveted into the casing

va) Spur gearing which, with the wheel, rotates the furnace

vi) Transmission mechanism from electric motor to gearing

vii) Electric motors, on of which, with one set of gearing, is in reserve.

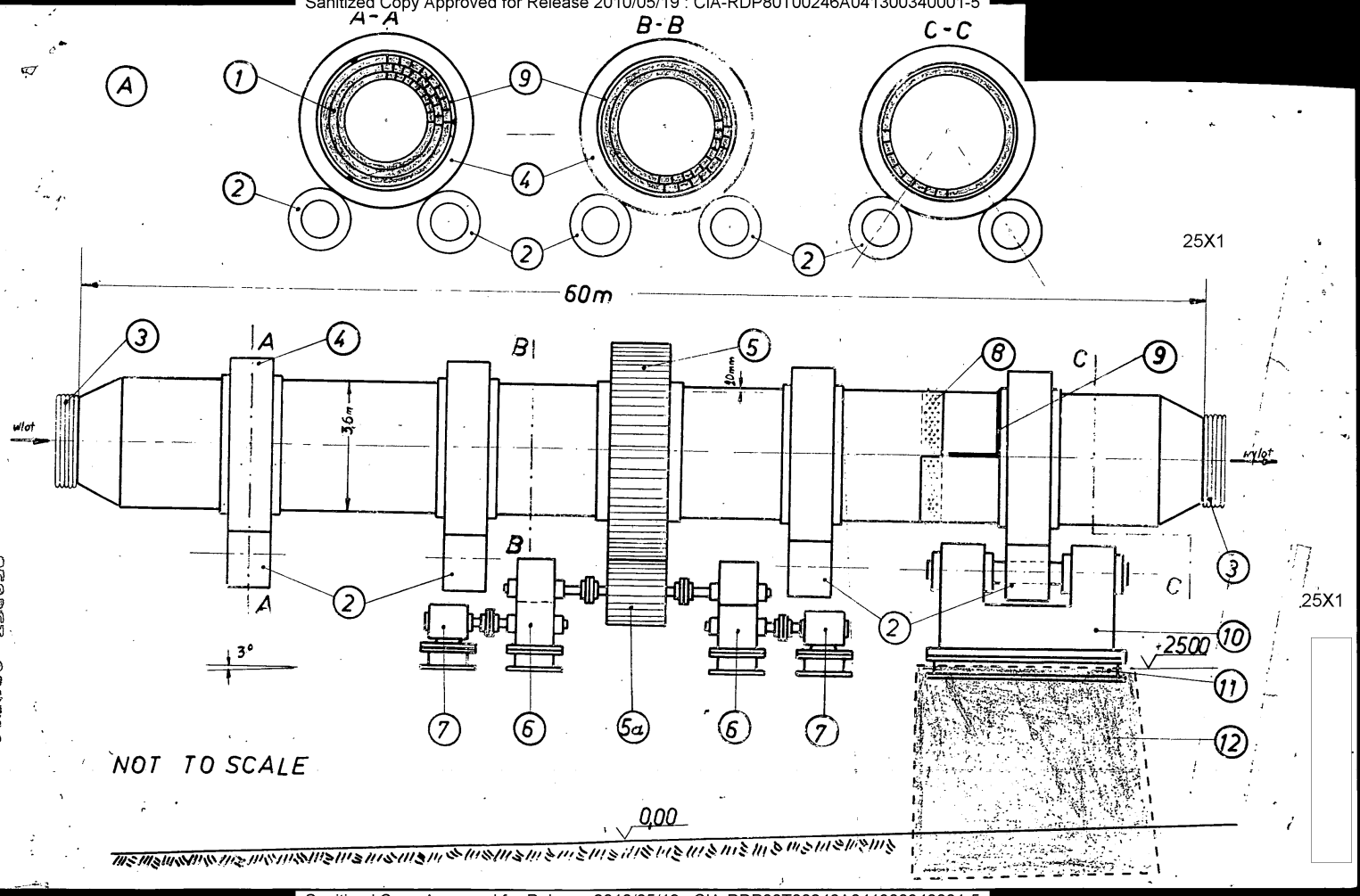
viii) Furnace casing, 20 mm. thick, riveted, in 11 parts.

ix) Lining under rotary bearings, steel plating 20 mm. thick.

x) Bearing supports, four-fold, two-axle.

xi) Framework for bearing supports, screwed into a concrete base

xii) Ferro-concrete base. BV 200 i.e. 30 kg. iron to the cubic metre.



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56- Key to sketch of process of ore enrichment (see sketch 3)

i) Ferro-concrete building 30 x 20 m.,5m. high, containing coal dust chamber with several circular mills for grinding coal dust used in the furnaces, which takes up the largest space; ventilators and conveyor mechanism.

ii) Rotary furnace, adjoining the coal dust chamber from which both coal dust and iron ore are brought into the furnace by conveyor.

iii) Ferro-concrete building, about 40 x 30 m. and 10 m. high, containing, in addition to conveyor mechanism and ventilators, the "multicyclone", which was built in Poland according to Czechoslovak design.

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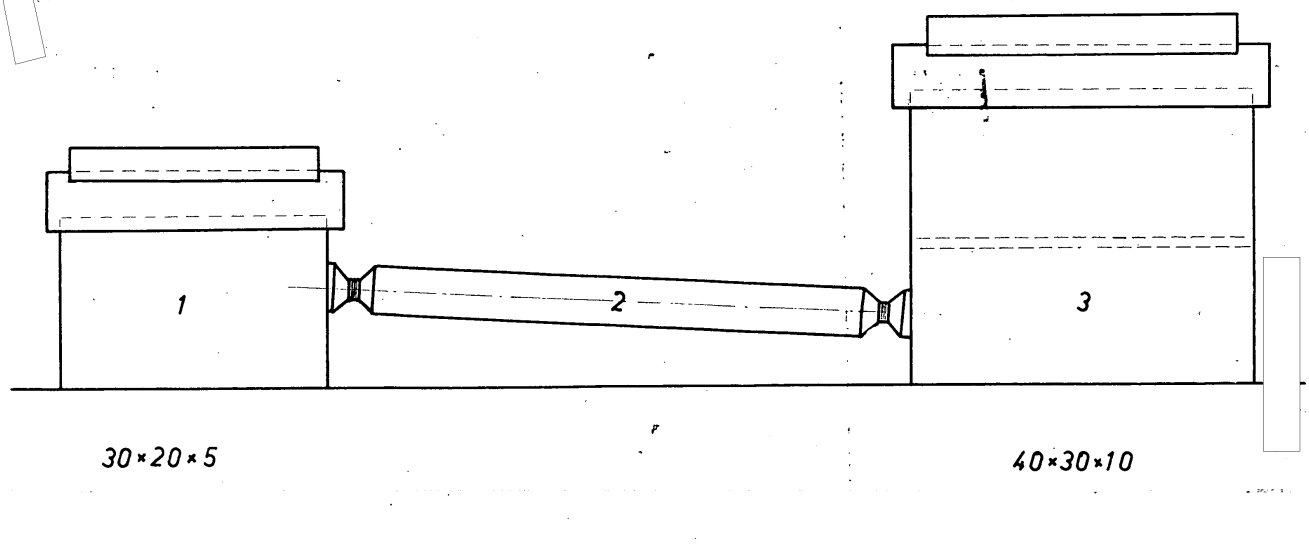
(B)



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